AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of the claims.

1. (Withdrawn) A semiconductor structure comprising at least one field effect transistor (FET) having a metal carbide gate electrode obtained by reacting a metal layer and a carbon-containing layer.

2. (Withdrawn) The semiconductor of claim 1 wherein the metal carbide comprises a carbide of Mo or Mo-Ru alloy.

3. (Withdrawn) The semiconductor of claim 1 wherein the semiconductor structure comprises a dual work function CMOS which comprises at least one FET having a gate formed from a gate metal; and at least one FET having a gate formed from a carbide of a metal.

4. (Withdrawn) The semiconductor structure of claim 3 wherein the metal of said carbide differs from the gate metal.

5. (Withdrawn) The semiconductor structure of claim 4 wherein metal of said carbide comprises Mo or Mo-Ru alloy.

6. (Withdrawn) A dual work function CMOS device which comprises
at least one FET having a gate formed from a first gate metal; and
at least one FET having a gate formed from a carbide of said first gate metal.

7. (Withdrawn) The CMOS device of claim 6 wherein said first metal is selected from the group containing the metals Al, Ba, Be, Bi, Co, Cr, Cu, Dy, Fe, Ga, Gd, Ir, Hf, Mg, Mo, Mn, Nb, Ni, Pd, Pt, Ir, La, Os, Pr, Nb, Rh, Re, Ru, Sc, Sn, Ta, Ti, V, W, Y, Zn, and Zr; conductive nitrides, silicides, germanides, silicon nitrides of these metals or their alloys; conductive alloys or compounds of these metals with or without additional nonmetallic elements.

8. (Withdrawn) The CMOS device of claim 6 wherein said first metal comprises Mo or Mo-Ru alloy.

9. (Withdrawn) A dual work function CMOS circuit comprising

- at least one FET having a gate electrode formed from a first metal and at least one additional element, and

- at least one FET having a gate electrode formed from a carbide of said first metal.

10. (Currently amended) A method of forming a gate for a FET which comprises providing a substrate, and depositing on said substrate a metal and a carbon-containing layer and reacting said metal and said carbon-containing layer to form a metal carbide ~~for providing a~~ gate electrode.

11. (Original) The method of claim 10 wherein said metal comprises Mo or Mo-Ru alloy.

12. (Original) A method of forming a dual work function CMOS device on a substrate which comprises:

depositing a metal layer on a first and second set of gate regions;

providing a carbon-containing layer in contact with one of said first and second set of gate regions and not on the other of said first and second set of gate regions, said carbon-containing layer being in direct contact with said metal layer on said one of said first and second set of gate regions;

reacting said carbon-containing layer on said one of said first and second set of gate regions with said metal on said one of said first and second set of gate regions to form a metal carbide.

13. (Original) The method of claim 12 wherein said providing a carbon-containing layer comprises depositing a carbon-containing layer; and patterning said carbon-containing layer by selectively removing it from one of said first and second set of gate regions while leaving it remaining on the other of said first and second set of gate regions.

14. (Original) The method of claim 12 wherein said providing a carbon-containing layer comprises depositing and patterning a photoresist layer; depositing said carbon-containing layer on said photoresist layer and then removing said photoresist along with said carbon-containing layer located on top of said photoresist while leaving said carbon-containing layer not located on top of said photoresist.

15. (Original) The method of claim 12 wherein said metal layer is patterned after reacting said metal and carbon-containing layer.

16. (Original) The method of claim 12 wherein said metal layer is patterned to form gate-shaped structures after depositing and patterning said layer of carbon-containing material.

17. (Original) The method claim 12 wherein said metal layer further comprises at least one additional element.

18. (Original) The method of claim 12 wherein said first metal is selected from the group consisting of Al, Ba, Be, Bi, Co, Cr, Cu, Dy, Fe, Ga, Gd, Ir, Hi, Mg, Mo, Mn, Nb, Ni, Pd, Pt, Ir, La, Os, Pr, Nb, Rh, Re, Ru, Sc, Sn, Ta, Ti, V, W, Y, Zn, and Zr; conductive nitrides, silicides, germanides, silicon nitrides of these metals or their alloys; conductive alloys or compounds of these metals with or without additional nonmetallic elements.

19. (Original) The method of claim 12 wherein said carbon-containing material from the group consisting of diamond, graphite; amorphous carbon with minimal H content; amorphous hydrogenated carbon ; carbon-containing polymers; organic photoresists; amorphous carbon-containing layers containing layer containing other elements such as Si, O, N, and/or H.

20. (Original) A method of forming a dual work function CMOS device on a substrate which comprises:

providing a carbon-containing layer in contact with one of a first and a second set of gate regions and not on the other of said first and second set of gate regions; and then

depositing a metal layer on said first and second set of gate regions, said metal layer being in direct contact with said carbon-containing layer on said one of said first and second set of gate regions;

reacting said carbon-containing layer on said one of said first and second set of gate regions with said metal on said one of said first and second set of gate regions to form a metal carbide.

21. (Original) The method of claim 20 wherein said providing a carbon-containing layer comprises depositing a carbon-containing layer and selectively removing said carbon-containing layer from one of said first and second set of gate regions while leaving it remaining on the other of said first and second set of gate regions.

22. (Original) The method of claim 20 wherein said providing a carbon-containing layer comprises depositing and patterning a photoresist layer; depositing said carbon-containing layer on said photoresist layer and then removing said photoresist along with said carbon-containing layer located on top of said photoresist while leaving said carbon-containing layer not located on top of said photoresist.

23. (Original) The method of claim 20 wherein said metal layer is patterned after reacting said metal and carbon-containing layer.

24. (Original) The method claim 20 wherein said metal layer further comprises at least one additional element.

25. (Original) The method of claim 20 wherein said first metal is selected from the group consisting of Al, Ba, Be, Bi, Co, Cr, Cu, Dy, Fe, Ga, Gd, Ir, Hi, Mg, Mo, Mn, Nb, Ni, Pd, Pt, Ir, La, Os, Pr, Nb, Rh, Re, Ru, Sc, Sn, Ta, Ti, V, W, Y, Zn, and Zr; conductive nitrides, silicides, germanides, silicon nitrides of these metals or their alloys; conductive alloys or compounds of these metals with or without additional nonmetallic elements.

26. (Original) The method of claim 20 wherein said carbon-containing material from the group consisting of diamond, graphite; amorphous carbon with minimal H content; amorphous hydrogenated carbon ; carbon-containing polymers; organic photoresists; amorphous carbon-containing layers containing layer containing other elements such as Si, O, N, and/or H.